

EXHIBIT A



US005743817A

United States Patent [19] Yamagishi et al.

[11] Patent Number: **5,743,817**
[45] Date of Patent: **Apr. 28, 1998**

[54] GOLF BALL

[75] Inventors: **Hisashi Yamagishi; Yoshinori Egashira; Hideo Watanabe**, all of Chichibu, Japan

[73] Assignee: **Bridgestone Sports Co., Ltd.**, Tokyo, Japan

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FOREIGN PATENT DOCUMENTS

2276628 10/1994 United Kingdom .

[21] Appl. No.: **536,049**

[22] Filed: **Sep. 29, 1995**

[30] Foreign Application Priority Data

Oct. 14, 1994 [JP] Japan 6-276109
Dec. 14, 1994 [JP] Japan 6-333024

[51] Int. Cl.⁶ **A63B 37/06; A63B 37/12**

[52] U.S. Cl. **473/377; 473/351; 473/385**

[58] Field of Search **473/372, 373, 473/351, 377, 385, 370, 374, DIG. 22**

[56] References Cited

U.S. PATENT DOCUMENTS

4,858,924 8/1989 Saito et al. 473/373

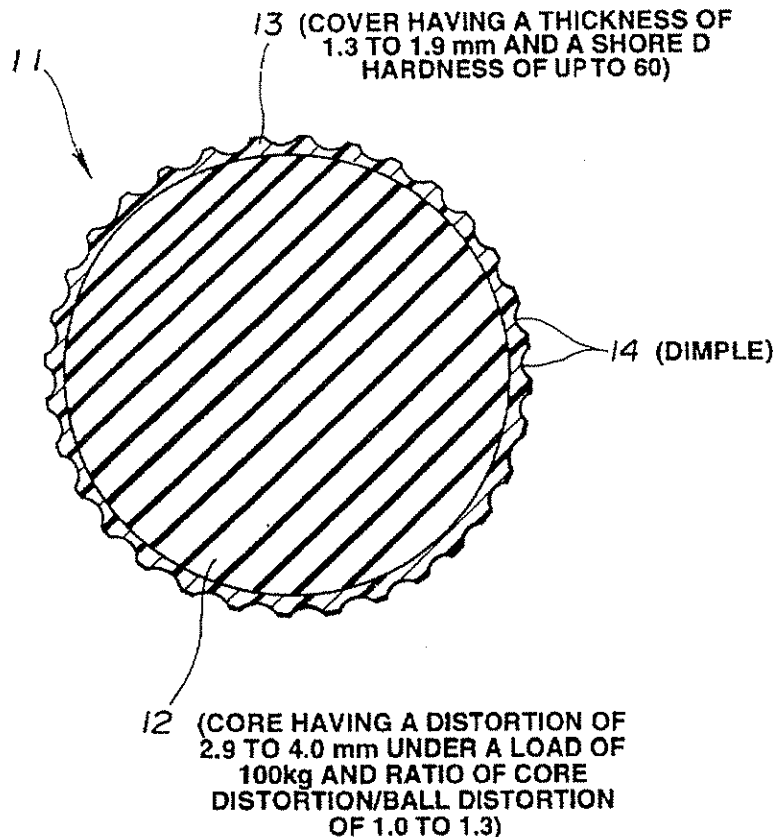
Primary Examiner—George J. Marlo

Attorney, Agent, or Firm—Sughrue, Mion, Zinn, Macpeak & Seas, PLLC

[57] ABSTRACT

A solid golf ball comprising a core and a cover is provided. The core has a core hardness expressed by a distortion of 2.2–4.0 mm under a load of 100 kg. The core hardness divided by the ball hardness ranges from 1.0 to 1.3. The cover has a thickness of 1.3–1.8 mm. The ball is improved in feel and spin while maintaining the flying distance inherent to solid golf balls.

2 Claims, 1 Drawing Sheet

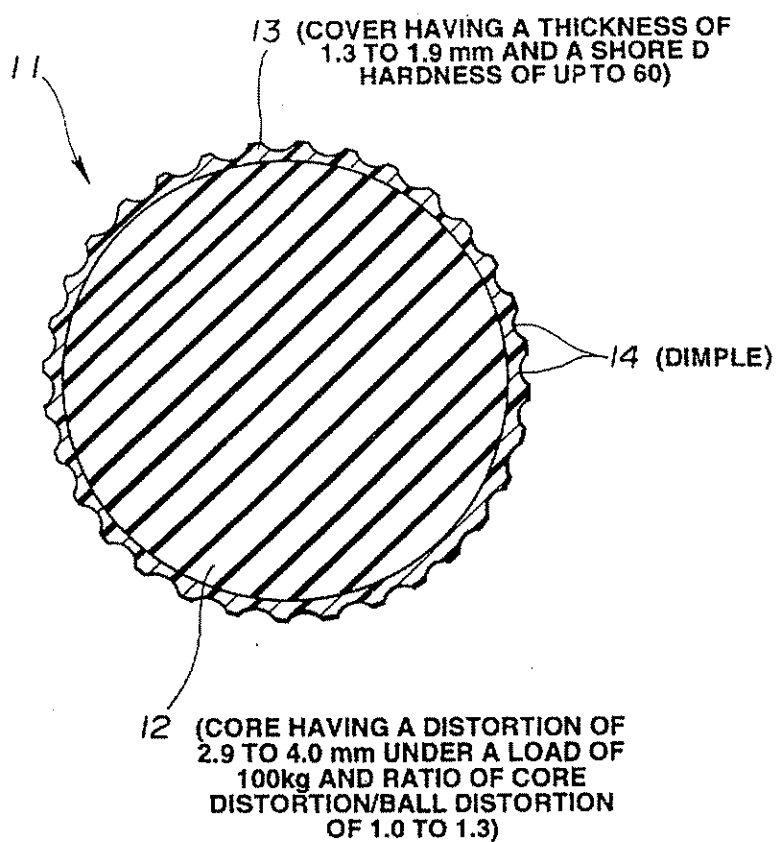


U.S. Patent

Apr. 28, 1998

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FIG. 1



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1 GOLF BALL

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a solid golf ball having improved feel and spin performance.

2. Prior Art

As compared with wound golf balls, two-piece golf balls and other solid golf balls are advantageous in gaining a flying distance since they fly along the trajectory of a straight ball when hit by both drivers and irons. This advantage is mainly attributable to their structure. Because of their configuration less receptive to spin, the solid golf balls are given a straight ball trajectory and yield a more run, resulting in an increased total flying distance.

In turn, the solid golf ball tends to draw a "flier" path on an iron shot since it is less receptive to spin and does not readily stop on the green. Because of such characteristics, the two-piece balls are not preferred by experienced players.

Therefore, there is a need for a solid golf ball having improved spin properties and allowing the player to aim the pin dead with an iron. The increased flying distance inherent to the solid golf ball should be maintained and of course, the ball should have a pleasant feel.

SUMMARY OF THE INVENTION

Therefore, an object of the present invention is to provide a solid golf ball such as a two-piece golf ball which is improved in feel, spin properties and iron control without detracting from the trajectory and flying distance inherent to the solid golf ball. The term iron control is the controllability of a ball on an iron shot, more specifically stop on the green.

Briefly stated, the present invention pertains to a solid, typically two-piece, golf ball comprising a core and a cover enclosing the core. The hardness of the core, cover and ball are referred to as core hardness, cover hardness, and ball hardness, respectively. According to the invention, the core hardness is such that the core undergoes a distortion of at least 2.2 mm under a load of 100 kg. The core hardness divided by the ball hardness is in the range of 1.0 to 1.3. The cover has a radial thickness of 1.3 to 1.8 mm. This parameter control leads to a golf ball satisfying the requirements of flying distance, feel and spin.

Consider the spin mechanism of golf balls made of the same materials, but changed in hardness. Provided that the club head speed and the cover material are identical, the coefficient of friction between the ball and the club face is identical and hence, an identical frictional force is exerted therebetween. Only distortion is different due to differential hardness. Then the distance between the center of gravity and the ball-club contact point is different. The harder the ball, the longer is the contact point distance. The softer the ball, the shorter is the contact point distance. Then harder balls are more receptive to spin.

The spinning mechanism associated with an iron suggests that the spin quantity can be increased by increasing the ball hardness. Increasing the ball hardness, however, gives a harder feel, exacerbating the hitting feel. The spin quantity can also be increased by making the cover softer. A softer cover, however, deprives the ball of repulsion, resulting in a loss of initial speed and flying distance.

Attempting to increase the spin quantity for improving spin properties by using a soft material, typically a material having a Shore D hardness of 60 or lower as the cover, we found that a low hardness cover lowers repulsion, resulting

in a loss of flying distance on hitting. Quite unexpectedly, we have found that by adjusting the core hardness to a distortion of at least 2.2 mm under a load of 100 kg, the ratio of core hardness to ball hardness to range from 1.0 to 1.3 and the cover thickness to range from 1.3 mm to 1.8 mm, the golf ball, whose cover is made of a softer material, is improved in iron control (that is, stop on the green) without deterring the feel and flying distance and without losing the trajectory and flying distance on a driver shot inherent to solid golf balls.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a schematic cross section illustrating one embodiment of the golf ball of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the golf ball comprising a spherical solid core enclosed in a cover according to the present invention, the core hardness is at least 2.2 mm as expressed by a distortion under a load of 100 kg, the core hardness divided by the ball hardness is in the range of 1.0 to 1.3 and the cover has a thickness of 1.3 to 1.8 mm.

The core hardness and ball hardness are defined by distortions (in mm) of the core and ball under a load of 100 kg, respectively. The core hardness corresponds to such a distortion of at least 2.2 mm, preferably at least 2.5 mm, more preferably 2.5 to 4.0 mm, most preferably 3.0 to 4.0 mm. With a core distortion of less than 2.2 mm, the feel becomes unpleasant. Too much core distortions would result in balls having poor restitution, low flying performance and a too soft feel. By controlling the core hardness/ball hardness so as to fall in the range between 1.0 and 1.3, especially between 1.0 and 1.25, the solid golf ball, typically two-piece golf ball is improved in feel, flying distance and spin characteristics. If the core hardness/ball hardness is less than 1.0, the feel becomes unpleasant. If the core hardness/ball hardness exceeds 1.3, the ball loses a quick stop on the green.

It is understood that the golf ball of the invention is advantageously applied to two-piece golf balls having a single core. It is also applicable to multi-core golf balls having a core consisting of two or more layers, such as three-piece golf balls. In an example where the core consists of two inner and outer layers, the core hardness refers to the hardness of the spherical two-layer core as a whole. Differently stated, the core hardness refers to the hardness of an entire spherical core left after removing the cover from the ball.

The cover has a Shore D hardness of up to 60, especially 55 to 60. A cover hardness of more than 60 would adversely affect spin characteristics and stop on the green. Since a cover with too low hardness would result in poor repulsion and a loss of flying distance, the lower limit of 55 is recommended for the cover hardness.

According to the invention, the cover has a radial thickness of 1.3 to 1.8 mm, especially 1.4 to 1.8 mm. Outside the range, the objects of the invention cannot be achieved. A cover of thinner than 1.3 mm is less resistant against top damage and liable to be broken. A cover of thicker than 1.8 mm leads to losses of repulsion and flying performance and gives a dull feel.

In general, the flying distance the ball covers depends on the head speed. The flying distance is reduced by a change from a higher head speed to a lower head speed. The degree

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3

of reduction of the flying distance by a change from a higher head speed to a lower head speed can be suppressed by limiting the cover thickness to the above-defined range. Differently stated, the dependency of flying distance on head speed is alleviated. Therefore, the ball of the invention is suitable for senior and female players who swing at a relatively low head speed.

In one preferred embodiment of the invention, the golf ball has a spin factor of 1.0 to 1.5. The spin factor is defined as follows. The golf ball has a spin quantity when hit by a pitching wedge (referred to as wedge spin quantity) and a spin quantity when hit by a driver (referred to as driver spin quantity). The spin factor is obtained by dividing the ratio of the wedge spin quantity to the driver spin quantity by the ball hardness. Then a spin factor smaller than unity means that the ball has greater spin with the driver and less spin with the pitching wedge. The former indicates that the trajectory is lofted and the flying distance is reduced. The latter indicates that when hit with an iron, the ball draws a flier-like trajectory and flies too much. A greater spin factor is then desirable. Then the object of the invention to render the ball receptive to less spin with a driver and more spin with an iron is effectively accomplished. However, a too greater spin factor would exacerbate ball control on an iron shot because the ball can be moved back too much due to back spin. For this reason, the spin factor is preferably in the range between 1.0 and 1.5.

The golf ball of the invention is advantageously applied to two-piece golf balls while it is also applicable to multi-core golf balls such as three-piece golf balls. The material and preparation of the core and cover are not critical. The components may be made of any of well-known materials insofar as the requirements of the invention are met. Of course, the golf ball of the invention has a standard size and weight.

More particularly, the core of the present solid golf ball is formed from a rubber composition by a conventional method while properly adjusting the component proportion and vulcanizing conditions. The core composition generally includes a base rubber, a crosslinking agent, a co-crosslinking agent, an inert filler, and other components. The base rubber may be selected from natural and synthetic rubbers conventionally used in the manufacture of solid golf balls. Preferably the base rubber is 1,4-polybutadiene rubber containing at least 40% of cis-configuration, optionally in admixture with natural rubber, polyisoprene rubber or styrene-butadiene rubber. The crosslinking agent is preferably selected from organic peroxides such as dicumyl peroxide and di-t-butyl peroxide, with the dicumyl peroxide being more preferred. Preferably the crosslinking agent is blended in an amount of about 0.5 to 3 parts, more preferably about 0.8 to 1.5 parts by weight per 100 parts by weight of the base rubber. Non-limiting examples of the co-crosslinking agent include metal salts of unsaturated fatty acids, especially zinc and magnesium salts of unsaturated fatty acids having 3 to 8 carbon atoms, such as acrylic acid and methacrylic acid. Zinc acrylate is the most preferred salt. The co-crosslinking agent is preferably blended in an amount of about 24 to 38 parts, more preferably about 28 to 34 parts by weight per 100 parts by weight of the base rubber. Examples of the inert filler include zinc oxide, barium sulfate, silica, calcium carbonate, and zinc carbonate, with the zinc oxide being most often used. The amount of the filler blended depends on the desired specific gravity of the core and cover, ball weight, and other factors although it generally ranges from about 10 to about 60 parts by weight per 100 parts by weight of the base rubber.

These components are blended to form a core-forming rubber composition which is kneaded by means of a conventional kneading machine such as a Banbury mixer and

4

roll mill and then compression or injection molded in a spherical mold cavity. The molded composition is cured by heating it at a sufficient temperature for the crosslinking and co-crosslinking agents to exert their function (for example, about 130° to 170° C. when the crosslinking agent is dicumyl peroxide and the co-crosslinking agent is zinc acrylate). In this way, a solid spherical core having a diameter of 37 to 40 mm is prepared.

In the case of a two layer core, the inner core may be made of the same composition as above and the outer core may be made of a similar rubber composition or a resin composition based on an ionomer resin or the like. The outer core may be formed by compression molding or injection molding it around the inner core. Typically the inner core has a diameter of 27.0 to 38.0 mm, preferably 28.0 to 36.0 mm and the outer core has a diameter of 0.5 to 6.5 mm, preferably 1.5 to 5.5 mm, and the total diameter ranges from 37 to 40 mm.

The solid core is enclosed with the cover by any desired technique, for example, by enclosing the core in a pair of semi-spherical shell halves followed by heat compression molding. Alternatively the core is directly covered with a cover material by injection molding. By properly selecting the material and amount of the core and cover and preparation conditions such as vulcanizing conditions, a golf ball satisfying the requirements of the invention can be prepared.

There has been described a golf ball which is improved in feel and spin characteristics while maintaining the flying distance inherent to solid golf balls and which undergoes a lower degree of reduction of its flying distance upon hitting at a lower head speed.

EXAMPLE

Examples of the present invention are given below by way of illustration and not by way of limitation.

Examples 1-6 and Comparative Examples 1-2

Cores having a hardness as shown in Table 1 were molded by vulcanizing in a mold rubber compositions comprising cis-1,4-polybutadiene rubber, zinc acrylate, zinc oxide, and dicumyl peroxide. The core hardness reported is a distortion in millimeter under a load of 100 kilograms.

The cores were enclosed with covers which were formed from mixtures of ionomer resins. The blending proportion of ionomer resins was changed to form covers having varying hardness (Shore D scale) as shown in Table 2. In this way, there were obtained large-size two-piece golf balls having a hardness as shown in Table 3. The ball hardness reported is again a distortion in millimeter under a load of 100 kilograms.

The base composition for the core consisted of the following components.

	Parts by weight
cis-1,4-polybutadiene rubber (BR01)	100
zinc acrylate	33.2
zinc oxide	10
barium sulfate	9.7
anti-oxidant	0.2
dicumyl peroxide	0.9

Cores having varying hardness and specific gravity were obtained by varying the amounts of zinc acrylate and barium sulfate as shown in Table 1.

5,743,817

5

TABLE 1

Core hardness	Cover gage				
	1.4 mm	1.6 mm	1.8 mm	2.0 mm	2.4 mm
2.48-2.50 mm	33.0	33.0	33.0	33.0	
	6.4	7.5	8.6	9.7	
2.88-2.91 mm	31.0	31.0	31.0	31.0	31.0
	7.8	8.8	9.9	11.0	13.9
3.25-3.30 mm	28.0	28.0	28.0	28.0	
	9.1	10.2	11.2	12.3	

At the upper and lower stages for each core hardness and cover gage combination, the amounts of zinc acrylate and barium sulfate are reported in parts by weight, respectively.

The base composition for the cover was a 50/50 (by weight) mixture of ionomer resins, Himilan 1650 and Surlyn

6

Stop on the Green Test

Using a swing robot manufactured by True Temper Co., the ball was hit by a pitching wedge at a head speed of 35 m/s so as to fly directly on the green. The distance between the landing and stop positions was measured. A negative value is the distance the ball covers due to back spin. A positive value is a run in a flying direction. The stop on the green was rated "O" for quick stop and "X" for non-stopping.

10 Feel Test

In a sensory test, a player hit the ball at a head speed (HS) of 35 m/s. The ball feel was rated "very soft", "soft" or "hard".

Note that the dependency of flying distance on head speed is expressed by the flying distance at a head speed of 35 m/s divided by the flying distance at a head speed of 45 m/s and simply reported under the heading "HS35/HS45" in Table 3.

TABLE 3

	Example						Comparative Example	
	1	2	3	4	5	6	1	2
Core hardness (mm)	2.48	3.30	2.50	2.90	2.91	3.25	2.10	2.85
Ball hardness (mm)	2.36	3.10	2.30	2.71	2.65	2.90	1.90	2.10
Core/ball hardness ratio	1.05	1.06	1.09	1.07	1.10	1.12	1.11	1.36
Cover thickness (mm)	1.4	1.4	1.6	1.6	1.8	1.8	1.8	2.4
Cover hardness (Shore D)	56	57	56	56	56	57	57	65
Feel @ HS35	soft	very soft	soft	very soft	soft	very soft	hard	soft
Flying distance (m)								
@ HS 35	154	160	154	158	157	159	147	148
@ HS 45	234	237	232	233	233	236	228	235
Stop on the green								
Landing-to-stop distance (m)	-0.5	0.5	0.0	0.0	0.0	0.5	0.0	2.5
Rating	o	o	o	o	o	o	o	x
HS35/HS45	0.658	0.675	0.664	0.678	0.674	0.673	0.645	0.630

8120. Covers having varying hardness were obtained while blending Himilan 1650 and Surlyn 8120 in a ratio as shown in Table 2.

TABLE 2

Cover hardness (Shore D)	Resin mix	Weight ratio
56	H1650/S8120	40/60
57	H1650/S8120	50/50
65	H1605/H1706	50/50

* H: Himilan commercially available from dai Pont-Mitsui Polychemical Co., Ltd.

S: Surlyn commercially available from E. I. duPont

The golf balls were examined for fly, stop on the green, and feel by the following procedures.

Fly Test

Using a swing robot manufactured by True Temper Co., the ball was hit by a driver at a head speed (HS) of 45 m/s and by an iron at a head speed of 35 m/s to measure the flying distance.

40 Although some preferred embodiments have been described, many modifications and variations may be made thereto in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

We claim:

1. A golf ball comprising a core and a cover wherein said core and said ball has a core hardness and a ball hardness respectively, wherein said core has a distortion of 2.9 to 4.0 mm under a load of 100 kg, the ratio of a core distortion under a load of 100 kg divided by a ball distortion under a load of 100 kg ranges from 1.0 to 1.3, and said cover consists of an ionomer resin as a resin component and has a thickness of 1.3 to 1.8 mm and a Shore D hardness of up to 60.

2. The golf ball of claim 1 wherein said cover has a thickness of 1.6 to 1.8 mm.

* * * * *

EXHIBIT B



TITLE OF THE INVENTION

Golf Ball

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BACKGROUND OF THE INVENTION

Field of the Invention

10 This invention relates to a solid golf ball having improved feel and spin performance.

Prior Art

15 As compared with wound golf balls, two-piece golf balls and other solid golf balls are advantageous in gaining a flying distance since they fly along the trajectory of a straight ball when hit by both drivers and irons. This advantage is mainly attributable to their structure. Because of their configuration less receptive to spin, the
20 solid golf balls are given a straight ball trajectory and yield a more run, resulting in an increased total flying distance.

In turn, the solid golf ball tends to draw a "flier" path on an iron shot since it is less receptive to spin and
25 does not readily stop on the green. Because of such characteristics, the two-piece balls are not preferred by experienced players.

Therefore, there is a need for a solid golf ball having improved spin properties and allowing the player to aim the
30 pin dead with an iron. The increased flying distance inherent to the solid golf ball should be maintained and of course, the ball should have a pleasant feel.

SUMMARY OF THE INVENTION

35 Therefore, an object of the present invention is to provide a solid golf ball such as a two-piece golf ball which is improved in feel, spin properties and iron control

2

-11-

We ⁴CLAIMS:

Sub 17

1. A golf ball comprising a core and a cover wherein said core has a core hardness expressed by a distortion of at least 2.2 mm under a load of 100 kg, said ball has a ball hardness, the core hardness divided by the ball hardness ranges from 1.0 to 1.3, and said cover has a thickness of 1.3 to 1.8 mm.
2. The golf ball of claim 1 wherein the cover has a Shore D hardness of up to 60°.
3. The golf ball of claim 1 wherein the core hardness is a distortion of 2.2 to 4.0 mm under a load of 100 kg.

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EXHIBIT C


**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

 Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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08/536,049 09/29/95 YAMAGISHI

H 039645

F3M1/0904

 SLUGHRUE MION ZINN MACPEAK & SEAS
2100 PENNSYLVANIA AVENUE NW
WASHINGTON DC 20037

MARL EXAMINER

ART UNIT	PAPER NUMBER
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3304

DATE MAILED: 09/04/96

 This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY
☒ Responsive to communication(s) filed on 9-29-95
☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

 A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims
☒ Claim(s) 1-3 is/are pending in the application.

☐ Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-3 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers
☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119
☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☒ BOTH ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

☐ Certified copies not received: _____

☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)
☒ Notice of Reference Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 2
☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

- SEE OFFICE ACTION ON THE FOLLOWING PAGES -

Serial No. 08/536,049
Art Unit 3304

-2-

The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 C.F.R. § 1.81.

The drawings are objected to under 37 C.F.R. § 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the diverse features now claimed and capable of being illustrated on the drawings, e.g., a particular cover thickness etc. must be shown or the feature cancelled from the claim. No new matter should be entered.

Claims 1-3 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The scope of the claims is not clear, since no certain units of measures are recited for each of the "core hardness" and "cover hardness", and such terms are not defined in the specification. Also, in claim 2 "60°" is not understood, for a hardness value. Also, the invention is obscured by failing to illustrate every feature claimed. Also, since no prior art publication has heretofore disclosed a hardness ratio of the core hardness divided by the ball hardness, the invention cannot be properly searched.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

EXHIBIT D

E. Chan
3-13-97

See
D.K.

PATENT APPLICATION

03/04/97

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

5/a

In re the Application of

Hisashi YAMAGISHI et al.

Application No: 08/536,049

Group Art Unit: 3304

Filed: September 29, 1995

Examiner: Marlo, G.

For: GOLF BALL

AMENDMENT UNDER 37 C.F.R. 1.115

Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

This Amendment is responsive to the Office Action of September 4, 1996, for which the Examiner has set a three-month period for response. A Petition and Fee Authorization for a three month extension of time is submitted herewith, thus making the response due on March 4, 1997

Please amend the above-identified case as follows:

IN THE CLAIMS:

1. (Amended) A golf ball comprising a core and a cover wherein said core and said ball has a core hardness and a ball hardness respectively, wherein said core has a distortion of 2.9 to 4.0 mm [core hardness expressed by a distortion of at least 2.2 mm] under a load of 100 kg, the ratio of a core distortion under a load of 100 kg divided by a ball distortion under a load of 100 kg ranges from [said ball has a ball hardness, the core hardness divided by ball hardness ranges from] 1.0 to 1.3, and said cover consists of an ionomer resin as a resin component and has a thickness of 1.3 to 1.8 mm and a Shore D hardness of up to 60.

13

EXHIBIT E

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT F

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT G

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See Also: All Weight and Mass Conversions | Metric Mass Conversions

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EXHIBIT H

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT I

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT J

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT K

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT L

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT M

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT N

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REDACTED IN ITS ENTIRETY**

EXHIBIT O

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT P

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT Q

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT R

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT S

**THIS EXHIBIT HAS BEEN
REDACTED IN ITS ENTIRETY**

EXHIBIT T



Analysis

As of: Apr 10, 2007

CROSS MEDICAL PRODUCTS, INC., Plaintiff-Appellee, v. MEDTRONIC SOFAMOR DANEK, INC. and MEDTRONIC SOFAMOR DANEK USA, INC., Defendants-Appellants.

05-1415

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

2007 U.S. App. LEXIS 6415

March 20, 2007, Decided

PRIOR HISTORY: [*1] Appealed from: United States District Court for the Central District of California. Judge Gary L. Taylor. *Cross Med. Prods. v. Medtronic Sofamor Danek, Inc.*, 2005 U.S. Dist. LEXIS 6567 (C.D. Cal., Apr. 8, 2005)

DISPOSITION: AFFIRMED-IN-PART, REVERSED-IN-PART, VACATED-IN-PART, and REMANDED.

COUNSEL: Mark A. Finkelstein, Latham & Watkins, LLP, of Costa Mesa, California, argued for plaintiff-appellee. With him on the brief were Bruce D. Kuyper and Jordan B. Kushner, of Los Angeles, California.

Dirk D. Thomas, Robins, Kaplan, Miller & Ciresi L.L.P., of Washington, DC, argued for defendants-appellants. With him on the brief were Robert A. Auchter, Andre J. Bahou, Jan M. Conlin and Munir R. Meghjee.

JUDGES: Before RADER, SCHALL, and PROST, Circuit Judges. Opinion of the court filed PER CURIAM. Concurring opinion filed by RADER, Circuit Judge.

OPINION: PER CURIAM.

This case is the second appeal to this court in a patent litigation between Cross Medical Products, Inc. (Cross Medical) and Medtronic Sofamor Danek, Inc. (Medtronic). Cross Medical accuses Medtronic's polyaxial screws of infringing U.S. Patent No. 5,474,555 (the '555 patent). In the prior appeal, this court set aside a permanent injunction issued by the United States District Court for the Central District of California and reversed

the summary [*2] judgment of infringement and validity of claim 5 of the '555 patent in favor of Cross Medical. See *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293 (Fed. Cir. 2005) (First Appeal). In this appeal, the district court issued another permanent injunction after Medtronic redesigned its polyaxial screws in an attempt to avoid the '555 patent. *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, SA CV 03-110-GLT, 2005 U.S. Dist. LEXIS 6567, slip op. at 2 (C.D. Cal. April 8, 2005) (Trial Court Opinion). The court determined that claim 5 of the '555 patent was infringed under the doctrine of equivalents by Medtronic's redesigned screws, but that claim 7 of the '555 patent was not infringed by either the original or redesigned screws. 2005 U.S. Dist. LEXIS 6567, slip op. at 14, 20. Notably, the district court did not have the benefit of this court's opinion in the First Appeal before issuing the second permanent injunction.

Because Medtronic's redesigned polyaxial screws do not infringe the asserted claims literally or under the doctrine of equivalents, this court reverses the grant of summary judgment of infringement of claim 5. On the redesigned screws, the district court should [*3] grant Medtronic's motion for summary judgment of non-infringement. The remaining issues, which involve the validity of claim 7 and infringement of this claim by Medtronic's original polyaxial screws require reconsideration in light of this court's prior opinion in the First Appeal. Accordingly, this court reverses-in-part and vacates-in-part the district court's findings on the remaining issues and remands.

I

This litigation began on February 4, 2003, when Cross Medical sued Medtronic for infringement of the '555 patent. Medtronic denied infringement and counter-claimed seeking a declaration of non-infringement and invalidity. On September 28, 2004, the district court issued a permanent injunction after granting Cross Medical's motions for partial summary judgment on validity and infringement of claim 5. Medtronic immediately filed an appeal with this court despite ongoing proceedings at the district court. *First Appeal*, 424 F.3d at 1299.

While the first appeal was pending, Medtronic redesigned its polyaxial screws in an attempt to avoid infringement of claim 5. In response, Cross Medical asserted that the redesigned screws still infringe claim 5 and that Medtronic's [*4] original and redesigned screws infringe claim 7.

On the claim 5 issue, the district court found that Medtronic's redesigned screws infringe under the doctrine of equivalents. *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, slip op. at 22. In reaching this finding, the district court determined that a narrowing amendment to claim 5 during prosecution was only "tangentially related" to the accused equivalent and thus not subject to an estoppel under *Festo*. 2005 U.S. Dist. LEXIS 6567, slip op. at 8-11; see *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359 (Fed. Cir. 2003) (en banc). The district court also found that none of the accused screws (original or redesigned) infringe claim 7, *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, slip op. at 14-20, but upheld the validity of this claim in the face of similar challenges Medtronic had previously raised with respect to claim 5, *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, slip op. at 20-22. Having concluded Medtronic's redesigned screws infringe claim 5, the district issued a second permanent injunction. Medtronic filed a second appeal with this court, which is the basis for the present appeal.

After Medtronic submitted its initial brief in this appeal, this court issued its [*5] opinion overturning the first permanent injunction. See *First Appeal*, 424 F.3d 1293. In the First Appeal, which involved claim 5 and Medtronic's original polyaxial bone screws, this court (1) affirmed the district court's construction of three limitations; (2) modified its construction of two limitations; (3) reversed its grant of summary judgment on infringement; (4) affirmed its grant of summary judgment on validity for indefiniteness and anticipation; and (5) reversed its grant of summary judgment on validity for obviousness due to factual issues on the motivation to combine various references. *Id.* at 1297.

This appeal overlaps considerably with the issues in the First Appeal. Because the First Appeal remanded several issues common to both injunctions, the parties

agree that the second permanent injunction cannot stand. However, the parties dispute what issues, if any, remain for decision in this second appeal. Cross Medical asserts that the only issues remaining are: (1) whether the redesigned Medtronic screw meets the "thread-depth" limitation of claim 5 literally or under the doctrine of equivalents; and (2) whether the district [*6] court's grant of summary judgment of non-infringement of claim 7 conflicts with this court's findings with respect to claim 5 in the First Appeal. Br. of Pl.-Appellee, 3, Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc., No. 05-1415 (Fed. Cir. 2006) (Appellee Brief). Of these two issues, Medtronic argues that only the claim 5 issue is properly before the court. According to Medtronic, this court lacks jurisdiction to entertain the claim 7 issue because Cross Medical did not file a cross-appeal to challenge the district court's adverse holdings with respect to this claim. Reply Br. of Defs.-Appellants, 16-24, Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc., No. 05-1415 (Fed. Cir. 2006) (Reply Brief).

II

With that backdrop, this court turns first to the claim 5 issue. The district court granted Cross Medical a summary judgment that Medtronic's redesigned screws infringe. "This court reviews the district court's grant or denial of summary judgment under the law of the regional circuit." *MicroStrategy, Inc. v. Bus. Objects, S.A.*, 429 F.3d 1344, 1349 (Fed. Cir. 2005) (citation omitted). The United States Court of Appeals for the Ninth [*7] Circuit reviews a grant of summary judgment without deference. *Leonel v. Am. Airlines, Inc.*, 400 F.3d 702, 708 (9th Cir. 2005). Thus, "[i]n the context of summary judgment, this court reviews de novo the district court's determination that there is no genuine issue as to any material fact regarding infringement." *Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1326 (Fed. Cir. 2006) (citing *MEMC Elec. Materials v. Mitsubishi Materials Silicon Corp.*, 420 F.3d 1369, 1373 (Fed. Cir. 2005)).

Having already concluded that Medtronic's original screws infringe claim 5, the district court examined the redesigned screws for appropriation of the "thread depth" limitation as well as the rest of the claimed features. See *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, slip op. at 6. Specifically, claim 5 reads:

5. A fixation device for the posterior stabilization of one or more bone segments of the spine, comprising:

at least two anchors and an elongated stabilizer comprising a rod having a diameter and a longitudinal axis, said anchors each

2007 U.S. App. LEXIS 6415, *

comprising anchoring means which secure said anchors to said bone segment and an anchor [*8] seat means which has a lower bone interface operatively joined to said bone segment and an anchor seat portion spaced apart from said bone interface including a channel to receive said rod; and securing means which cooperate with each of said anchor seat portions spaced apart from said bone interface and exterior to the bone relative to said elongated rod, said seat means including a vertical axis and first threads which extend in the direction of said vertical axis toward said lower bone interface to a depth below the diameter of the rod when it is in the rod receiving channel, and said securing means including second threads which cooperate with the first threads of the seat means to cause said rod to bear against said channel through the application of substantially equal compressive forces by said securing means in the direction of the vertical axis and applied on either side along said longitudinal axis of said channel.

'555 patent, col. 8 ll. 33-57 (emphasis added). On literal infringement, the district court determined that Medtronic's redesign, which "replaces the threads below the top of the rod with a groove or 'undercut[,]'" lacks thread forms and thus "does [*9] not literally meet the limitation requiring 'threads' extending below the top of the rod." *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, *slip op.* at 6-7.

As described in the specification, the thread depth limitation corresponds to the anchor seat 23 shown in Figures 3 and 6 of the '555 patent and the threading thereon:

[SEE IMAGE IN ORIGINAL]

The embodiments of Figures 3 and 6 show that the threads on the anchor seat 23 extend to a depth below the top surface of the rod 18 as claimed. Notably, this thread depth requirement was not in the '555 patent's original application. Rather, the originally filed claim simply called for a "seat means including a vertical axis and first threads" without any particular limitation about the extent of the threading. The Examiner rejected this original claim, however, for lack of antecedent basis and lack of support in the specification (35 U.S.C. § 112, PP 1-2), for obviousness type double patenting over *U.S. Patent No. 5,360,431*, and for anticipation (35 U.S.C. § 102(b)) over

U.S. Patent No. 4,805,602 (the '602 patent). In response, the Applicant amended the claim (originally numbered as claim 15) to recite: [*10]

15. (Amended) A fixation device for the posterior stabilization of one or more bone segments of the spine, comprising:

....

securing means which cooperate with each of said anchor seat portions spaced apart from said bone interface and exterior to the bone relative to said elongated rod, said seat means including a vertical axis and first threads which extend in the direction of said vertical axis toward said lower bone interface to a depth below the diameter of the rod when it is in the rod receiving channel, and said securing means including second threads which cooperate with the first threads of the seat means to cause said rod to bear against said channel through the application of substantially equal compressive forces by said securing means in the direction of the vertical axis and applied on either side along said longitudinal axis of said channel.

In the same filing, the Applicant also amended the specification to address the 35 U.S.C. § 112, P 1 rejection and submitted a terminal disclaimer to address the double patenting rejection. Thereafter, the Patent Office allowed the claim.

Medtronic apparently focused on [*11] this prosecution history in attempting to design around claim 5. Specifically, as noted by the district court, Medtronic altered its original screw design to terminate the corresponding threads at a position above the rod diameter. The district court agreed with Medtronic that the redesign took their screws outside the literal scope of claim 5. *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, *slip op.* at 7 ("The new design does not literally meet the limitation requiring 'threads' extending below the top of the rod."). However, the district court still found the screws infringe claim 5 under the doctrine of equivalents' function-way-result test. 2005 U.S. Dist. LEXIS 6567, *slip op.* at 11. In so holding, the district court rejected Medtronic's argument that a Festo presumption barred application of the doctrine of equivalents:

[T]he rationale behind the amendment [to claim 5] was to adequately describe and enable a device, under § 112, in which the securing means could secure the rod without the use of a cap. The applicant was not attempting to overcome prior art using an undercut, and the amendment did not relate to an undercut. Therefore, the rationale was no more than tangentially related to Medtronic's [*12] new screw design, in which threads extend part of the way toward the rod and an undercut extends to a depth below the top of the rod. Medtronic's new screw design is "beyond a fair interpretation of what was surrendered." *Festo*, 535 U.S. at 738.

Trial Court Opinion, 2005 U.S. Dist. LEXIS 6567, slip op. at 10. Medtronic challenges this reasoning and seeks summary judgment of non-infringement both under literal infringement and equivalents.

A. Literal Infringement

Turning first to literal infringement, Medtronic replaced the threading that extends below the diameter of the rod in its original screws with an undercut that does not engage any surface on the corresponding set screw. Cross Medical characterizes this undercut as effectively a thread because it constitutes the root of an incomplete thread. The district court considered this argument by Cross Medical and properly rejected it as stretching the meaning of "thread" too far. 2005 U.S. Dist. LEXIS 6567, slip op. at 7 (rejecting Cross Medical's argument that "the undercut is an 'effective thread,' which the parties agree is a complete thread, plus portions of an incomplete thread that are fully formed at the root but not at the crest"). As [*13] explained by the district court, the undercut in Medtronic's screws is not a thread because no thread forms in the undercut to join the flanks of adjacent thread forms above the diameter of the rod. *Id.* Simply because the undercut appears adjacent to a thread form does not convert that independent structure into a thread. Thus, the district court properly found that this limitation only can be satisfied, if at all, under the doctrine of equivalents.

B. Infringement by Equivalents

Prosecution history estoppel prevents a patentee from recapturing under the doctrine of equivalents subject matter surrendered during prosecution to obtain a patent. See *Festo*, 344 F.3d at 1365 (citing *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 741, 122 S. Ct. 1831, 152 L. Ed. 2d 944 (2002) (*Festo VIII*)). Indeed, by surrendering subject matter, a narrow-

ing amendment classically invokes the doctrine. In this case, the patentee narrowed claim 5 to address a § 112 rejection. An amendment made to comply with § 112 may give rise to estoppel. *Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, 370 F.3d 1131, 1142 (Fed. Cir. 2004) (en banc [*14]) ("[I]f a § 112 amendment is necessary and narrows the patent's scope—even if only for the purpose of better description—estoppel may apply. A patentee who narrows a claim as a condition for obtaining a patent disavows his claim to the broader subject matter, whether the amendment was made to avoid the prior art or to comply with § 112."). Although these circumstances create a presumption of estoppel under *Festo*, the patentee may still rebut that presumption. *Rhodia Chimie v. PPG Indus. Inc.*, 402 F.3d 1371, 1382 (Fed. Cir. 2005) ("The patentee may rebut that presumption by showing that the alleged equivalent was unforeseeable at the time the amendment was made, that the alleged equivalent was tangential to the purpose of the amendment, or that there was some other reason suggesting that the patentee could not reasonably be expected to have described the insubstantial substitute in question."). In this case, the district court determined that Cross Medical successfully overcame the *Festo* presumption by demonstrating that the amendment bore no more than a tangential relationship to the equivalent.

On appeal, Cross Medical argues that the amendment to claim [*15] 5 was tangential or, in the alternative, that it was unforeseeable. This court reaffirms the principle that the tangential relation criterion for overcoming the *Festo* presumption is very narrow and finds that neither the narrow tangential rebuttal principle nor the foreseeability principle applies to this case.

As discussed in the *Festo* opinion, the tangentially related

criterion requires a patentee to demonstrate that "the rationale underlying the narrowing amendment[bore] no more than a tangential relation to the equivalent in question." *Festo VIII*, 535 U.S. at 740, 122 S. Ct. 1831. In other words, this criterion asks whether the reason for the narrowing amendment was peripheral, or not directly relevant, to the alleged equivalent.

Festo, 344 F.3d at 1369 (quoting *Festo VIII*, 535 U.S. at 740). The *Festo* court further stated: "Although we cannot anticipate the instances of mere tangentialness that may arise, we can say that an amendment made to avoid prior art that contains the equivalent in question is not

2007 U.S. App. LEXIS 6415, *

tangential; it is central to allowance of the claim." *Id.* Finally, the court observed that [*16] the inquiry into whether a patentee can rebut the Festo presumption under the "tangential" criterion focuses on the patentee's objectively apparent reason for the narrowing amendment and that the reason "should be discernible from the prosecution history of record, if the public notice function of a patent and its prosecution history is to have significance." *Id.*

Cross Medical's reliance on *Insituform Technology, Inc. v. CAT Contracting, Inc.*, 385 F.3d 1360 (Fed. Cir. 2004), is misplaced. In *Insituform*, the invention claimed a method of impregnating an inner layer of resin with a limitation that specified the number and location of vacuum cups used in the method. See *Id.*, 385 F.3d at 1368-69 (citing *U.S. Patent No. 4,366,012*, claims 1-4). The applicant added the number and location limitations to overcome prior art that disclosed a single vacuum source at the end of the tube opposite the resin source. *Id.* at 1369. In asserting a bar on the application of the doctrine of equivalents, the defendants argued that this narrowing amendment "necessarily gave up coverage of any process in which the vacuum was created at multiple [*17] vacuum sources," as in the accused processes. *Id.* at 1370. This court found instead that the prosecution history showed that "the reason for the amendment was to overcome the prior art teaching creation of a single source vacuum at the far end of the liner." *Id.* In other words, an amendment distinguishing prior art based on where the vacuum source was located was only tangentially related to an equivalent directed at the number of vacuum sources. See *Biagro W. Sales, Inc. v. Grow More, Inc.*, 423 F.3d 1296, 1306 (Fed. Cir. 2005) (explaining that, in *Insituform*, "the reason for the amendment and the alleged equivalent involved different aspects of the invention—the location of the vacuum source relative to the resin versus the number of vacuum cups" (citing *Insituform*, 385 F.3d at 1370)).

In *Insituform*, this court stated that in an analysis to determine if an amendment is tangential, "[t]he question we must address is 'whether the reason for the narrowing amendment was peripheral, or not directly relevant, to the alleged equivalent.'" 385 F.3d at 1370 (citing *Festo*, 344 F.3d at 1365). [*18] Accordingly, this court has addressed the relationship between the narrowing amendment and the equivalent in broad terms: "[A]n amendment made to avoid prior art that contains the equivalent in question is not tangential." *Rhodia Chimie*, 402 F.3d at 1383. This court also added, "[i]t does not follow, however, that equivalents not within the prior art must be tangential to the amendment." *Id.* Indeed, in *Rhodia*, this court ultimately determined that the applicant "surrendered the range between its original claim

and its amended claim and is therefore estopped from asserting . . . the doctrine of equivalents." *Id.*

In this case, the prosecution history of the '555 *patent* shows a narrowing amendment that also "contains the equivalent in question." *Id.* The '555 *patent* Applicant explained to the Examiner that:

the claims have . . . been amended to define the anchor seat means having a channel and threads which cooperate with the securing means (i.e., the nut) so as to capture the stabilizer between the channel and the securing means since the ancor [sic] seat threads extend toward the channel to a depth below the top of the stabilizer when [*19] it is in the channel.

In other words, the prosecution history explains that the thread depth limitation was added to capture the manner in which the stabilizer aspect of the invention operated and thereby overcome the 35 U.S.C. § 112 rejections. Thus, the accused equivalent, which does not include threads extending "to a depth below the top of the stabilizer" and correspondingly does not capture this aspect of the invention relates to the amendment as shown even by the applicant's own statements. For this reason, the district court erred in reliance on the tangential rebuttal principle to avoid the doctrine of equivalents.

As an alternative, Cross Medical argues that the alleged equivalent was unforeseeable at the time of the amendment and thus the Festo presumption could be overcome with this rebuttal criterion. See *Festo*, 344 F.3d at 1365 (commenting that the presumption can also be overcome "by demonstrating that 'the equivalent[would] have been unforeseeable at the time of the [amendment]'" (quoting *Festo VIII*, 535 U.S. at 740-41)). To the contrary, the evidence of record clearly demonstrates that [*20] the use of an undercut or recess, the alleged equivalent here, is an old and well known fundamental of basic machining that was entirely foreseeable at the time of the amendment to one of ordinary skill in the art. See, e.g., John R. Walker, *Machining Fundamentals, Fundamentals Basic to Industry*, at 185-86 (1981); *U.S. Patent No. 5,129,900*; *U.S. Patent No. 5,190,543*.

Even Cross Medical implicitly recognized this fact in its literal infringement argument. Namely, Cross Medical suggests that an "undercut" was known in the art to serve effectively as a thread. Of course, this contention also means that the ordinary artisan would have considered an undercut as a foreseeable way to operate the invention—meaning that the patent drafter had an obliga-

2007 U.S. App. LEXIS 6415, *

tion therefore to include an undercut within the scope of the claim if it intended the invention to extend to that foreseeable means of using the invention. See *Ranbaxy Pharms., Inc. v. Apotex, Inc.*, 350 F.3d 1235, 1241 (Fed. Cir. 2003) (holding that if an allegedly infringing product was readily known by those of skill in the art to be equivalent to the claim limitation, "it would have been foreseeable to literally include [*21] [it] in the claim"); see also *Talbert Fuel Sys. Patents Co. v. Unocal Corp.*, 347 F.3d 1355, 1359-60 (Fed. Cir. 2003). Thus, the district court properly did not rely on unforeseeability as a rebuttal of the presumption of surrender in the narrowing amendment. See *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1361 (Fed. Cir. 2005) (citing *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997)) ("[A]s between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection for [a] foreseeable alteration of its claimed structure."); *SmithKline Beecham Corp. v. Excel Pharms., Inc.*, 356 F.3d 1357, 1363 (Fed. Cir. 2004) ("Usually, if the alleged equivalent represents later-developed technology (e.g., transistors in relation to vacuum tubes, or Velcro (R) in relation to fasteners) or technology that was not known in the relevant art, then it would not have been foreseeable. In contrast, old technology, while not always foreseeable, would more likely have been foreseeable. [*22] "); *Glaxo Wellcome, Inc. v. Impax Labs., Inc.*, 356 F.3d 1348, 1353 (Fed. Cir. 2004) (same).

C. Summary

For the foregoing reasons, this court concludes that Cross Medical cannot satisfy its burden of overcoming the Festo presumption on either the tangentially related criterion or the foreseeability criterion. Because Medtronic's redesigned screws do not literally infringe claim 5 and Festo bars capturing these screws under the doctrine of equivalents, the district court should have granted summary judgment of non-infringement in favor of Medtronic under both literal infringement and infringement by equivalents regarding this claim.

III

Turning next to the claim 7 infringement issue, the district court found that "Medtronic's old and new screw designs do not infringe the limitation of claim 7 requiring an 'anchor seat including external threads.'" *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, slip op. at 17. As discussed below, the district court properly granted summary judgment of non-infringement of claim 7 on Medtronic's redesigned screws. However, because the district court's grant of summary judgment of non-infringement of claim 7 on Medtronic's original screws is called [*23] into question by this court's treatment of

similar limitations in claim 5 in the First Appeal, this court vacates this aspect of the district court's summary judgment grant and remands for further proceedings consistent with the First Appeal.

A. Redesigned Screws

While not identical to claim 5, claim 7 contains similar limitations beyond the scope of Medtronic's redesigned screws. Specifically, claim 7 reads:

7. A device for the stabilization of one or more bone segments, comprising:

at least two anchors and a rod having a diameter, said anchors each comprising screw means, an anchor seat, and a nut, said anchor seat including external threads and a channel to receive said rod and having a rod contacting surface in the bottom of the channel and said threads extending toward the rod contacting surface to a thread run-out, the distance between the rod contracting surface and the thread run-out being less than the diameter of the rod; and said nut including top and bottom surfaces and a relatively constant diameter through bore having threads which mate with the threads of the anchor seat and said nut being exterior to said rod and tightening down [*24] toward the rod whereby said bottom surface applies to compressive force to said rod.

'555 patent, col. 8 l.62-col.10 l.4 (emphasis added).

Notably, the district court concluded Medtronic's redesigned screws do not meet the limitation "said threads extending toward the rod contacting surface to a thread run-out, the distance between the rod contacting surface and the thread run-out being less than the diameter of the rod" for reasons similar to the literal infringement analysis of claim 5. *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, slip op. at 19. Cross Medical argues that this finding was in error because, as argued with respect to claim 5, the undercut in Medtronic's product purportedly constitutes an "effective thread." Having already rejected this argument, this court affirms this aspect of the district court's grant of summary judgment in favor of Medtronic.

B. Original Screws

Turning next to the original screws, the parties dispute whether this court has jurisdiction to entertain this issue at all. Medtronic argues that a cross-appeal is a

necessary predicate to considering this issue and, in its absence, this court lacks jurisdiction. Cross Medical argues that this court may consider [*25] the issue as an "alternative" basis upon which the district court could have issued its second permanent injunction. As outlined below, this court agrees with Medtronic that it should not address the merits of the issue but also agrees with Cross Medical that the district court should have the opportunity to reconsider this question in light of the First Appeal.

On the jurisdictional inquiry, this court need not consider whether the district court could have issued the second permanent injunction on some other grounds. Rather, this court reviews the district court's judgment with an eye to whether an alternative basis might support that decision. See *Lairam Corp. v. NEC Corp.*, 115 F.3d 947, 954 (Fed. Cir. 1997) (commenting that a cross-appeal is unnecessary for a party to present alternative arguments for affirmance of a trial court's decision). In this case, the First Appeal determined that material issues of fact remain for adjudication (on both infringement and validity) for claim 5. Those same issues apply as well to claim 7. Thus, even if this court detected flaws in the district court's reasoning on some of the disputed limitations, it could not [*26] uphold the district court's grant of summary judgment at this point in the proceedings. Therefore, this court will not address the merits of Cross Medical's theory with respect to infringement of claim 7 by Medtronic's original screws.

While this court does not address the merits of this issue, the First Appeal certainly calls into question some of these claim 7 issues. Thus, this court agrees with Cross Medical that this aspect of the district court's summary judgment grant must be vacated and remanded for reconsideration in light of the First Appeal. After reconsideration by the district court, the parties may then seek further appellate review of these issues, if necessary.

IV

The district court also determined that claim 7, like claim 5, is not anticipated, obvious, or indefinite. In the First Appeal, this court affirmed the district court's holdings on anticipation and indefiniteness with respect to claim 5, but held that issues of material fact remained for adjudication with respect to obviousness. See *First Appeal*, 424 F.3d at 1297. Thus, for similar reasons as discussed in the First Appeal, this court affirms the district court's grant of [*27] summary judgment of validity on anticipation and indefiniteness with respect to claim 7, reverses its grant of summary judgment of validity on obviousness with respect to claim 7, and remands for further proceedings.

V

In conclusion, summary judgment of non-infringement on all asserted claims should have been entered for Medtronic with respect to the redesigned screws. The remaining issues involving validity and infringement of claim 7 by Medtronic's original screws requires reconsideration in light of the First Appeal. Thus this court affirms-in-part, reverses-in-part, vacates-in-part, and remands for further proceedings consistent with this opinion and the First Appeal.

COSTS

Each party shall bear its own costs.

AFFIRMED-IN-PART, REVERSED-IN-PART, VACATED-IN-PART, and REMANDED

CONCUR BY: RADER

CONCUR: RADER, Circuit Judge, concurring.

I concur with the result in this case. I write separately to address further the issue of prosecution history estoppel of claim 5 of U.S. Patent No. 5,474,555 (the '555 patent).

The district court found that Cross Medical successfully rebutted the presumption of prosecution history estoppel for claim 5 of the '555 patent based [*28] on tangentiality. *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, SA CV 03-311-GLT, 2005 U.S. Dist. LEXIS 6567, slip op. at 10 (C.D. Cal. 2005) (Trial Court Opinion). With that finding, the district court proceeded to determine that Medtronic's redesigned screws (with internal threads that stopped above the top of the rod) infringe under the doctrine of equivalents. *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, slip op. at 22. As noted in the majority opinion, the '555 patent applicant specifically amended its claims in response to an examiner's rejection. The amendment specified that the first threads extend deeper than the top of the rod received in the channel of the seat. Majority Opinion, pp. 6-7. The examiner allowed the application based on this amendment. *Id.* at 7.

This prosecution history became very important when Medtronic attempted to design around claim 5. As this court has noted, Medtronic altered its original screw design to terminate the corresponding threads at a position above the rod diameter. *Id.* at 7. Medtronic chose this new design with an eye to the applicant's narrowing amendment. Nonetheless, the district court determined that this narrowing amendment to claim 5 during prosecution [*29] was only "tangentially related" to the accused equivalent and thus not subject to an estoppel. *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, slip op. at 8-11; see *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359 (Fed. Cir. 2003) (en

baric). Thus, the district court found the screws infringe claim 5 under the doctrine of equivalents. *Trial Court Opinion*, 2005 U.S. Dist. LEXIS 6567, slip op. at 11.

This court made the tangential relation criterion for overcoming the Festo presumption very narrow. *Festo*, 344 F.3d at 1369. Festo itself recognized that rebuttals under the tangential principle will be rare. *Id.* ("[W]e cannot anticipate the instances of mere tangentialness that may arise . . ."). Cases in the interim have confirmed Festo's insight; only two cases have successfully invoked the tangential rebuttal principle in this court. See *Insituform Tech. Inc. v. CAT Contracting, Inc.*, 385 F.3d 1360, 1368 (Fed. Cir. 2004) (holding that an amendment adding a single cup bore no more than a tangential relation to the alleged equivalent containing multiple cups); *Primos, Inc. v. Hunter's Specialties, Inc.*, 451 F.3d 841, 849 (Fed. Cir. 2006) [*30] (finding that the "territory surrendered" by a claim amendment requiring a plate to be "differentially spaced" did not bar equivalence to a dome-shaped structure). The facts of *Insituform* and *Primos* arguably related to situations where the prosecution history clearly demonstrated that the alleged equivalent and the narrowing amendment implicate entirely different aspects of the invention. Yet in reading those cases, frankly, this court might well have justifiably reached a different result in both. For example, in *Insituform*, this court seems to assume that the number of sources bears no relation to the location of those multiple sources. A contrary conclusion might have noted that anytime a technology adds another source it must also add another location for that new source. Multiple sources and locations for those sources would seem logically related.

In my view, the tangential rebuttal principle exacerbates the policy deficiencies of the doctrine of equivalents. Upon invoking tangentiality, the patentee has already admitted that the equivalent falls within the scope of surrendered subject matter. Further, if the case permitted, any patentee would invoke the primary [*31] "foreseeability" rebuttal factor. Thus, an invocation of "tangentiality" often admits that the equivalent was both within the scope of the surrender and foreseeable at the time of prosecution. In other words, the patent drafter could have claimed the surrendered and foreseeable technology, but declined to do so.

Furthermore, the tangentiality rebuttal principle, by its nature, undermines principles of public notice. This rebuttal principle operates because the patentee has expounded very different purposes for its narrowing amendment than those applicable to the tangential equivalent. The prosecution record thus does not address this "tangential" equivalent (which nonetheless was surrendered and was known and claimable during prosecution). In other words, the patentee gets a reward--

coverage under the doctrine of equivalents--precisely because its explanations did not give the public any notice of the unclaimed and surrendered subject matter. The public might have believed it could practice technology that the patentee surrendered in prosecution. Moreover, the public might have reasonably undertaken to practice that foreseeable technology because the patentee could have claimed it [*32] but declined to do so. Even beyond these principles, the public might have consulted the prosecution history and learned that the patentee gave no explanation for its surrender of this foreseeable technology. Thus, a diligent study of the patent and its prosecution history would give the public every reason to believe that the "tangential" subject matter would fall outside the scope of the invention and within the public domain. The basic principles of public notice would suggest these unclaimed and surrendered "tangential" technologies have no conceivable basis to expect patent protection.

This case is a classic example of the tangentiality principle running counter to principles of public notice. Medtronic had suffered an injunction. It deliberately sought to design around the patented technology--a response that patent law encourages. *State Indus. Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1236 (Fed. Cir. 1985) ("One of the benefits of a patent system is its so-called 'negative incentive' to 'design around' a competitor's products, even when they are patented, thus bringing a steady flow of innovations to the marketplace."). It undoubtedly consulted the patent and [*33] adjusted its technology with reference to the claim language and prosecution history of the patent. Then, after it adopted unclaimed technology that the patentee had deliberately surrendered to the public, it finds itself again subject to an injunction. Tangentiality thus, as in this case, can defeat principles of notice and proper procedures for designing around patented technology. Medtronic's situation illustrates the difficulties of a broad application of tangentiality.

This "tangential" rebuttal principle becomes even more difficult in practice. What neutral standard makes some surrendered and unclaimed technologies infringing equivalents while others enjoy no protection? This tangential concept has no analogue in patent law. How tangential does it have to be?

In any event, this case reaffirms that the tangential rebuttal principle remains very narrow. See *Biagro W. Sales, Inc. v. Grow More, Inc.*, 423 F.3d 1296, 1306 (Fed. Cir. 2005) (distinguishing *Insituform* as limited to situations in which the prosecution history clearly demonstrates that "the amendment and alleged equivalent involve different aspects of the invention"). Biagro thus explains that [*34] the factual circumstances that could give rise to the tangential rebuttal principle will very

2007 U.S. App. LEXIS 6415, *

rarely occur (even less often successfully). Biagro emphasizes that the evidence of tangentiality must appear in the prosecution history in order to prevent litigation-driven or hindsight reconstruction of the reasons for an amendment. The applicant is not likely to have made a prosecution record that makes some subject matter (the equivalent) tangential to the purpose for the rest of the amendment. See Kenneth D. Bassinger, *Unsettled Expectations in Patent Law: Festo & The Moving Target of Claim Equivalence*, 48 *How. L. J.* 685, 720 (2005) ("Unfortunately, if the reason for an amendment is truly tangential in nature, it is not likely to be found in the prosecution history."); Martha M. Rumore, *Ranbaxy Pharms.*

v. Apotex: Redefining Claim Drafting and Patent Prosecution Under Festo, 22 No. 4 *Intell. Prop. L. Newsl. (ABA)*, Summer 2004, at 12, 13 (questioning whether there is, in practice, a separate tangential relation criterion or whether the three criteria established in *Festo* really boil down to simply an all encompassing foreseeability test). In any event, [*35] I would reemphasize that the application of the tangentiality factor in this case preserves the Biagro narrowness principle and stress that tangentiality always threatens the public notice that enables designing around. *MEDTRONIC INC; CROSS MEDICAL PRODUCTS INC;*

EXHIBIT U

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Page 1

Slip Copy, 2006 WL 3253636 (N.D.Ill.)
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Auto Meter Products, Inc. v. Maxima Technologies
& Systems, LLC
N.D.Ill., 2006.

Only the Westlaw citation is currently available.

United States District Court, N.D. Illinois, Eastern
Division.

AUTO METER PRODUCTS, INC., Plaintiff,

v.

MAXIMA TECHNOLOGIES & SYSTEMS, LLC,
Defendant.

No. 05 C 4587.

Nov. 6, 2006.

Philip T. Petti, Rudy I. Kratz, Fitch, Even, Tabin &
Flannery, Chicago, IL, Charles W. Saber, Merritt R.
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Snyder LLC, Lancaster, PA, Matthew Austin Griffin
, Robert M. Newbury, Robert W. Sacoff, Sanjiv D.
Sarwate, Pattishall, McAuliffe, Newbury, Hillard &
Geraldson, Chicago, IL, Salvatore Anastasi,
Attorney at Law, Berwyn, PA, for Defendant.

MEMORANDUM OPINION AND ORDER

NOLAN, Magistrate J.

*1 Plaintiff Auto Meter Products, Inc. has filed suit
against Defendant Maxima Technologies &
Systems, LLC alleging trademark infringement and
unfair competition under 15 U.S.C. §§ 1114 and
1125, and under Illinois common law. Currently
before the court is Auto Meter's motion to compel
complete answers to Interrogatory Nos. 12, 13, and
15. For the reasons set forth below, the motion is
granted in part and denied in part.

BACKGROUND

Auto Meter develops, manufactures, and sells
automotive measuring instruments, such as

tachometers, speedometers, and gauges for
measuring oil pressure, oil temperature, water
temperature, vacuum, fuel pressure, and fuel levels.
In connection with that business, Auto Meter owns
the Super Bezel Trademark, Principal Registration
No. 2,883,435 (the '435 Registration), and the "
ULTRA-LITE" trademark, Principal Registration
No. 1,967,655 (the '655 Registration). It also owns
the trade dress for the "Monster Tachometer."

On May 16, 2003, Auto Meter filed a complaint
with the International Trade Commission ("ITC")
seeking to stop 19 respondents from importing and
selling imitation tachometers and gauges that
infringe Auto Meter trademarks. Maxima was not a
respondent in that action, but was involved as a
third party and produced documents to the named
respondents. In this lawsuit against Maxima, Auto
Meter alleges that Maxima's "Stewart Warner
Performance" series of tachometers, gauges, and
speedometers infringes the '435 and '655
Registrations, and the Monster Tachometer Trade
Dress.

Prior to the close of fact discovery, Auto Meter
served Maxima with several contention
interrogatories, including the following:

Interrogatory No. 12: State fully the basis,
including all supporting facts, documents, exhibits,
testimony and/or expert opinions, for Maxima's
allegations in paragraphs 1-5 of its affirmative
defenses that Auto Meter's Super Bezel Trademark,
Associated Trade Dress, and Monster Tachometer
Trade Dress are functional and that Auto Meter is
not entitled to any trade dress protection; that Auto
Meter's Super Bezel Trademark, Associated Trade
Dress, and Monster Tachometer Trade Dress are
not inherently distinctive and have not acquired
secondary meaning; that the relief requested in Auto
Meter's Complaint is barred by laches and that Auto
Meter unreasonably delayed in filing suit; and that
Maxima's use of the term "Ultra-Shift Light"
constitutes a fair use.

Interrogatory No. 13: State fully the basis,

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Page 2

Slip Copy, 2006 WL 3253636 (N.D.Ill.)
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including all supporting facts, documents, exhibits, testimony and/or expert opinions, for Maxima's allegation that its accused products do not infringe Auto Meter's trade dress and trademark rights asserted in this action.

Interrogatory No. 15: State fully the basis, including all supporting facts, documents, exhibits, testimony, and/or expert opinions, for Maxima's counterclaim.

Maxima initially responded to these interrogatories on February 7, 2006, directing Auto Meter to its amended answer and stating that "other facts may be disclosed in the course of discovery." (Ex. 4 to Pl. Mem., at 9-11.) On June 30, 2006, Maxima submitted supplemental responses stating that "[d]iscovery is on-going and Maxima will supplement this response as discovery progresses." With respect to Interrogatory No. 15, Maxima further directed Auto Meter to "the documents produced in response to Auto Meter's document requests." (Ex. 5 to Pl. Mem., at 9-10.)

*2 Maxima supplemented its discovery responses a second time on September 6, 2006, the original deadline for fact discovery.^{FN1} Auto Meter found these responses inadequate and ultimately filed a motion to compel on September 29, 2006. On October 5, 2006, Auto Meter conducted a continued deposition of Maxima's President and CEO Oddie Leopando, who had been designated as the company's Rule 30(b)(6) witness and who was originally deposed on August 17, 2006. During the continued deposition, Auto Meter questioned Mr. Leopando about the September 6, 2006 supplemental responses. On October 17, 2006, Maxima supplemented its responses a third time, adding still new contentions in support of its defenses and counterclaim. (Ex. B to Def. Resp.) Auto Meter insists that Maxima should be barred from relying on "any contentions, factual bases, and documents not fully disclosed in its October 17 supplemental response, or in its August 17 and October 5 Rule 30(b)(6) depositions." Auto Meter also seeks to recover attorneys' fees and costs incurred in pursuing this motion to compel.

FN1. On September 11, 2006, the court

agreed to extend fact discovery to October 6, 2006. (Minute Order of 9/11/06, Doc. 51.)

DISCUSSION

Contention interrogatories, such as those at issue here, basically "require the answering party to commit to a position and give factual specifics supporting its claims." *Ziemack v. Centel Corp.*, No. 92 C 3551, 1995 WL 729295, at *2 (N.D.Ill.Dec.7, 1995). "When one party poses contention interrogatories after considerable discovery, and the opposing party refuses to answer the interrogatories, courts routinely compel the resisting party to answer the interrogatories." *Calobrace v. American Nat'l Can Co.*, No. 93 C 999, 1995 U.S. Dist. LEXIS 1371, at *3 (N.D.Ill. Feb. 3, 1995) (citing *Rusty Jones, Inc. v. Beatrice Co.*, No. 89 C 7381, 1990 WL 139145, at *2 (N.D.Ill. Sept.14, 1990)).

A. Interrogatory Nos. 12 and 15

Interrogatory No. 12 seeks information regarding Maxima's affirmative defenses. Interrogatory No. 15 requests the facts and documents supporting Maxima's counterclaim, which seeks cancellation of Auto Meter's Super Bezel Trademark based on Maxima's affirmative defenses. Auto Meter argues that Maxima has engaged in a pattern of providing deficient answers to these interrogatories, and then serially supplementing those answers with new allegations and citations. For example, at his October 5, 2006 30(b)(6) deposition, Mr. Leopando purported to disclose all of the factual bases and evidence for Maxima's functionality defense. (Leopando Dep., at 517, 518-91.) In the October 17, 2006 supplemental response, however, Maxima newly asserted that it is additionally relying on "documents addressing functionality from the International Trade Commission proceeding." (Ex. B to Def. Resp., at 3.) According to Auto Meter, the ITC record consists of more than 75,000 pages, but Maxima has not identified "a single one of the documents from that mountain of materials that it expects to rely upon for its functionality allegations." (Pl. Reply, at 6.)

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Page 3

Slip Copy, 2006 WL 3253636 (N.D.Ill.)
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*3 Similarly, with respect to Maxima's defense that Auto Meter's trademarks/trade dress lack secondary meaning, Maxima produced at the October 5 deposition three old gauges made by the now defunct Sun Electric Company in the 1960s and 1970s. (Pl. Reply, at 6 n. 7.) Mr. Leopando then testified that these were the only historical Sun products upon which Maxima intended to rely. (Ex. B to Def. Resp., at 598-609, 615.) In the October 17, 2006 supplemental response, however, Maxima referenced some 36 additional gauges listed in the expert report of a Mr. Behrens from the ITC case. (Ex. B. to Def. Resp., at 5; Pl. Reply, at 6.) Maxima also stated for the first time that "evidence concerning third-party gauges and tachometers can be found in the production of documents and gauges which Auto Meter inspected on September 26, 2006." (Ex. B to Def. Resp., at 5.) This production apparently comprises approximately 36 bankers boxes of old gauges, automotive magazines, brochures, and documents. Auto Meter claims that Maxima has not identified which materials from those boxes support its defenses or counterclaim. Auto Meter also objects that Maxima "continues to withhold its contentions ... concerning the facts necessary to establish the relevance of those old gauges (or the other gauges it relies upon) to the use of 'secondary meaning,' e.g., the channels of trade into which they are sold, their market position and market segments, features relevant to consumers, their sales and market share, etc." (Pl. Reply, at 7.)

In addition, Maxima apparently raised an entirely new contention supporting its secondary meaning defense in the October 17 supplemental response; namely, that Auto Meter's small percentage of sales to private label and original equipment customers ("OEM") eliminate the secondary meaning of the Super Bezel trademark. (Ex. B to Def. Resp., at 5.) Maxima claims that unspecified "licensed third-parties" to the Super Bezel mark and unspecified "documents produced by Auto Meter concerning OEM and private label sales and customers, artwork for OEM and private label dial faces" support this new assertion.

As for Maxima's laches defense, the company still has not produced documents Mr. Leopando

mentioned at his deposition that purportedly show that Auto Meter received certain "strategic information" about Maxima's products during a Maxima plant tour. (Pl. Reply, at 8-9.) Nor has Maxima identified the individuals involved in that plant tour, or the Auto Meter personnel who allegedly spoke about the Maxima products during a trade show. (*Id.*)

At this late stage of the case, the court agrees that it is time for Maxima to fully and completely answer Auto Meter's interrogatories. Fact discovery is at an end, yet Maxima is still referencing new documents and materials supporting its defenses and counterclaim. As noted, contention interrogatories "require the answering party to commit to a position and give factual specifics supporting its claims." *Thomas & Betts Corp. v. Panduit Corp.*, No. 93 C 4017, 1996 WL 169389, at *2 (N.D.Ill. Apr.9, 1996). The Federal Rules, moreover, "are designed to promote liberal discovery in an effort to narrow the issues for trial and prevent unfair surprise." *Wright v. Touhy*, No. 97 C 742, 2003 WL 22439864, at *4 (N.D.Ill. Oct.28, 2003).

*4 Maxima is ordered to identify (1) the specific ITC documents that support its functionality defense; (2) the specific gauges and documents from the September 26, 2006 inspection and the Behrens report that it intends to rely upon for its secondary meaning defense; (3) the facts supporting the relevance of these third-party gauges; (4) the documents Mr. Leopando mentioned at his deposition, and any other documents that purportedly show that (a) Auto Meter received certain "strategic information" about Maxima's products during a Maxima plant tour, and (b) Maxima suffered prejudice from Auto Meter's delay in pursuing its claims; (5) the Auto Meter personnel who participated in the Maxima plant tour and/or attended the trade show, and the specific statements they made which support Maxima's laches defense; and (6) the specific documents and data supporting Maxima's assertion that Auto Meter's small percentage of sales to private label and original equipment customers eliminate the secondary meaning of the Super Bezel trademark. Any facts or documents not so disclosed cannot be relied upon in this case.

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Page 4

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Contrary to Maxima's assertion, none of this information constitutes protected work product. (Def. Resp., at 8.) Auto Meter is requesting the identification of facts, documents, individuals, statements, and products supporting Maxima's defenses and counterclaim, and not Maxima's legal theories or analyses. Responses to these requests will not, as Maxima suggests, provide Auto Meter with "a 'playbook' of how Maxima will present its defenses and counterclaim at trial." (*Id.* at 10-11.) See, e.g., *Fridkin v. Minnesota Mut. Life Ins. Co.*, No. 97 C 332, 1998 WL 42322, at *4 (N.D.Ill. Jan. 29, 1998) (work-product privilege did not protect defendant from producing documents, witnesses, and industry/company policy supporting its defense); *Mead Corp. v. Riverwood Natural Resources, Corp.*, 145 F.R.D. 512, 517-18 (D.Minn.1992) (rejecting alleged infringer's work-product immunity defense to answering interrogatories that sought "objective facts upon which defenses interposed were based and the identity of persons with knowledge of those facts.") Auto Meter's motion to compel the above information is granted.

B. Interrogatory No. 13

Interrogatory No. 13 seeks information supporting Maxima's defense of non-infringement. In the October 17, 2006 supplemental response, Maxima states that it is relying on "the overall different look and impression of its products as compared to Auto Meter's; the prominent display of distinguishing brand names and the use of distinguishing packaging; [and] that there have been no instances of confusion." (Ex. B to Def. Resp., at 9.) Maxima refuses, however, to identify (1) how the Maxima products create a different look and impression, including identification of distinguishing features; (2) the distinguishing brand names, how they are displayed, and how their display supports Maxima's contention of non-infringement; and (3) the distinguishing packaging and how its use supports Maxima's contention of non-infringement. (Def. Resp., at 9.) Maxima argues that engaging in a detailed comparison of the parties' products and packages "would require Maxima to reveal its legal strategy and positions with regard to the entire case.

" (*Id.*) The court disagrees.

*5 As with Interrogatory No. 12, Auto Meter seeks the facts upon which Maxima's non-infringement defense is based, and not any legal theory or analysis. Indeed, Maxima cannot prevail on its non-infringement defense in the absence of specific facts. See, e.g., *Homefront, Inc. v. Cashmere Crafts, Inc.*, No. C 05-0597 PJH, 2005 WL 3369988, at *8 (N.D.Cal. Dec.12, 2005) ("[S]imply to assert that the accused products did not actually infringe Homefront's copyrights is far from providing facts that support a defense of non-infringement.") The motion to compel is granted with respect to Interrogatory No. 13.

C. Expert Opinions

In addition to the information discussed above, Interrogatory Nos. 12, 13, and 15 all seek expert opinions supporting Maxima's defenses and counterclaim. The court agrees with Maxima that these disclosures are properly addressed pursuant to the expert discovery schedule set by this court on September 11, 2006. (Minute Order of 9/11/06, Doc. 51.) This portion of Auto Meter's motion to compel is denied.

D. Sanctions

In light of the above ruling, the court finds that Auto Meter has not been harmed by Maxima's delay in responding to the contention interrogatories and declines to award sanctions. *Commonwealth Ins. Co. v. Titan Tire Corp.*, 398 F.3d 879, 888 (7th Cir.2004) ("A district court enjoys broad discretion in declining to impose discovery sanctions and exclude evidence."); *Najieb v. Chrysler-Plymouth*, No. 01 C 8295, 2002 WL 31906466, at *3 n. 10 (N.D.Ill.Dec.31, 2002) ("Th[e] Court has broad discretion to determine whether to issue discovery sanctions.")

CONCLUSION

For the reasons stated above, Auto Meter's motion

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Page 5

Slip Copy, 2006 WL 3253636 (N.D.Ill.)
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to compel [Doc. 54] is granted in part and denied in part. Maxima is ordered to provide Auto Meter with further answers to Interrogatory Nos. 12, 13, and 15 consistent with this opinion by November 30, 2006.

N.D.Ill.,2006.
Auto Meter Products, Inc. v. Maxima Technologies
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